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Chromosomal abnormalities in secondary bovine oocytes matured in vitro up to 48 hours

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Preliminary experiments carried out in our laboratory indicated that -by fertilizing oocytes matured in vitro for 24-32 and 48 h - the resulting blastocyst rates decreased from 22.4 % (24 h), to 14.0 % (32 h) to '0' % (48 h). The aim of this study was investigate upon the variation in the incidence of chromosomal abnormalities occurring in bovine oocytes matured in vitro for prolonged periods of time, i.e. from 24 to 32 to 48 h. Abattoir-derived oocytes were matured in vitro using standard procedures, for 24-32 and 48 h. After incubation, the COCs were treated with Ialuronidase (3 mg/ml) to eliminate the cumulus cells, swelled in hypotonic (KCl, 0.075M) for 5-10 min, fixed individually on microscope slides with Carnoy fixative, air dried and stained with 5% Giemsa. Conventional karyotypes were prepared from 50 matured oocytes for each time of maturation, providing the following results: chromosomal abnormalities, including unreduced diploid metaphases, hypo-haploidy and hypo-diploidy, increased from 12 % at 24 h, to 20 % at 32 h, to 36 % at 48 h. The Chi-square test (with Yates corrections) showed significant differences (P>0.01) in the rate of chromosome abnormalities from 24 to 48 h of maturation as well as from 32 to 48 h, whereas the differences between 24 and 32 h were not significant. These results confirm previous data and provide further evidence that bovine oocytes to be used in IVF programs should not be matured in vitro longer than 24-32 h.

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